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The Influence of Spines on Predation of Devonian Brachiopods

Broc S. Kokesh
University or Minnesota, Morris, koke0028@morris.umn.edu

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April 18, 2015

Undergraduate Research Symposium

A long, long time ago…

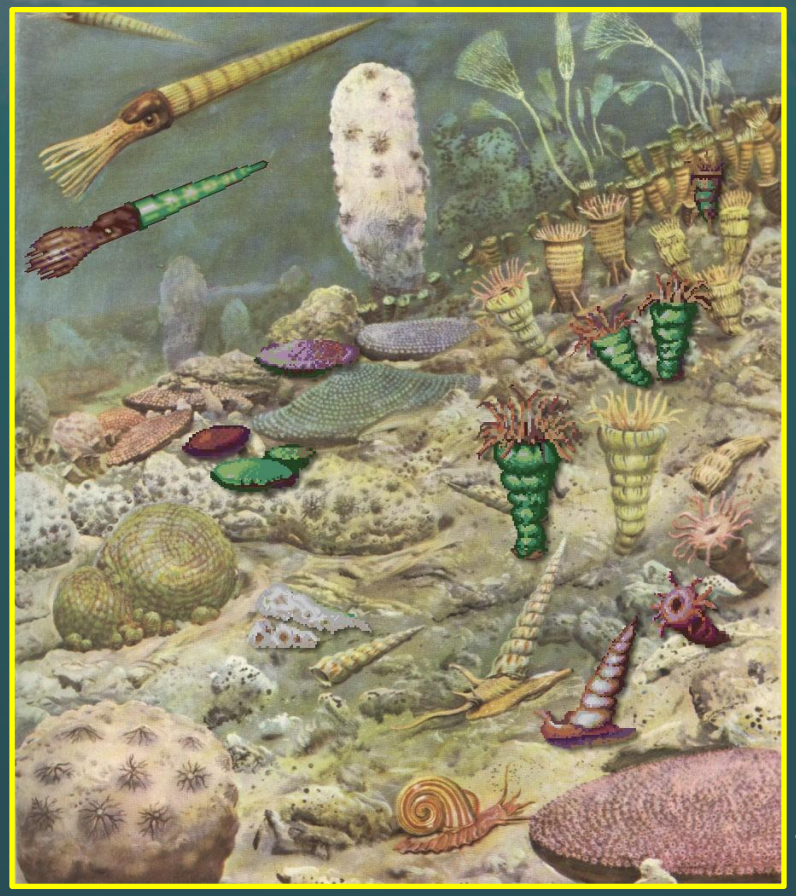


Photo:
http://web8.orcaserver.de/ecco/stories/articles/prehistoric.php

In an ocean very near here…

Brachiopod Morphology

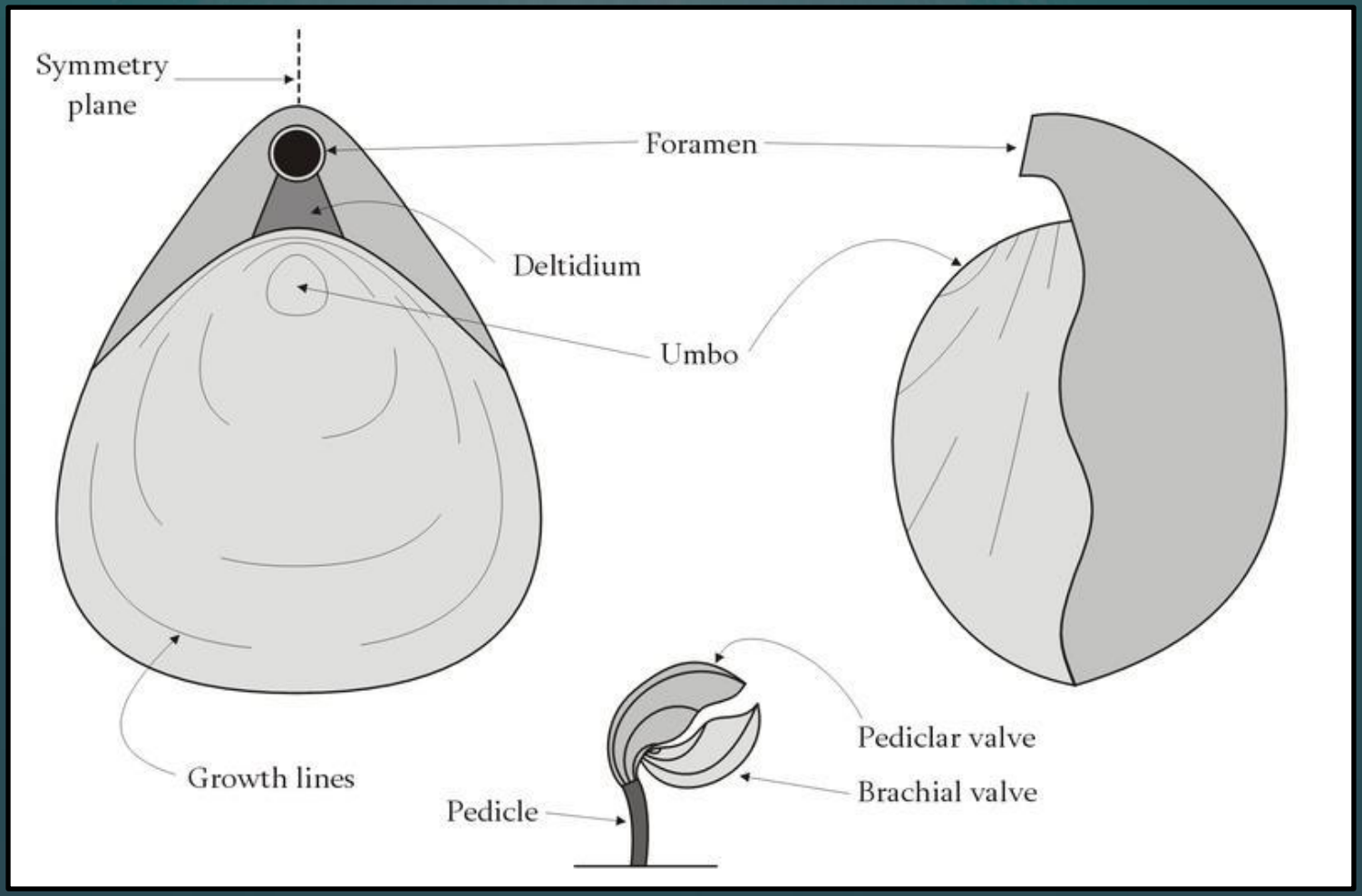
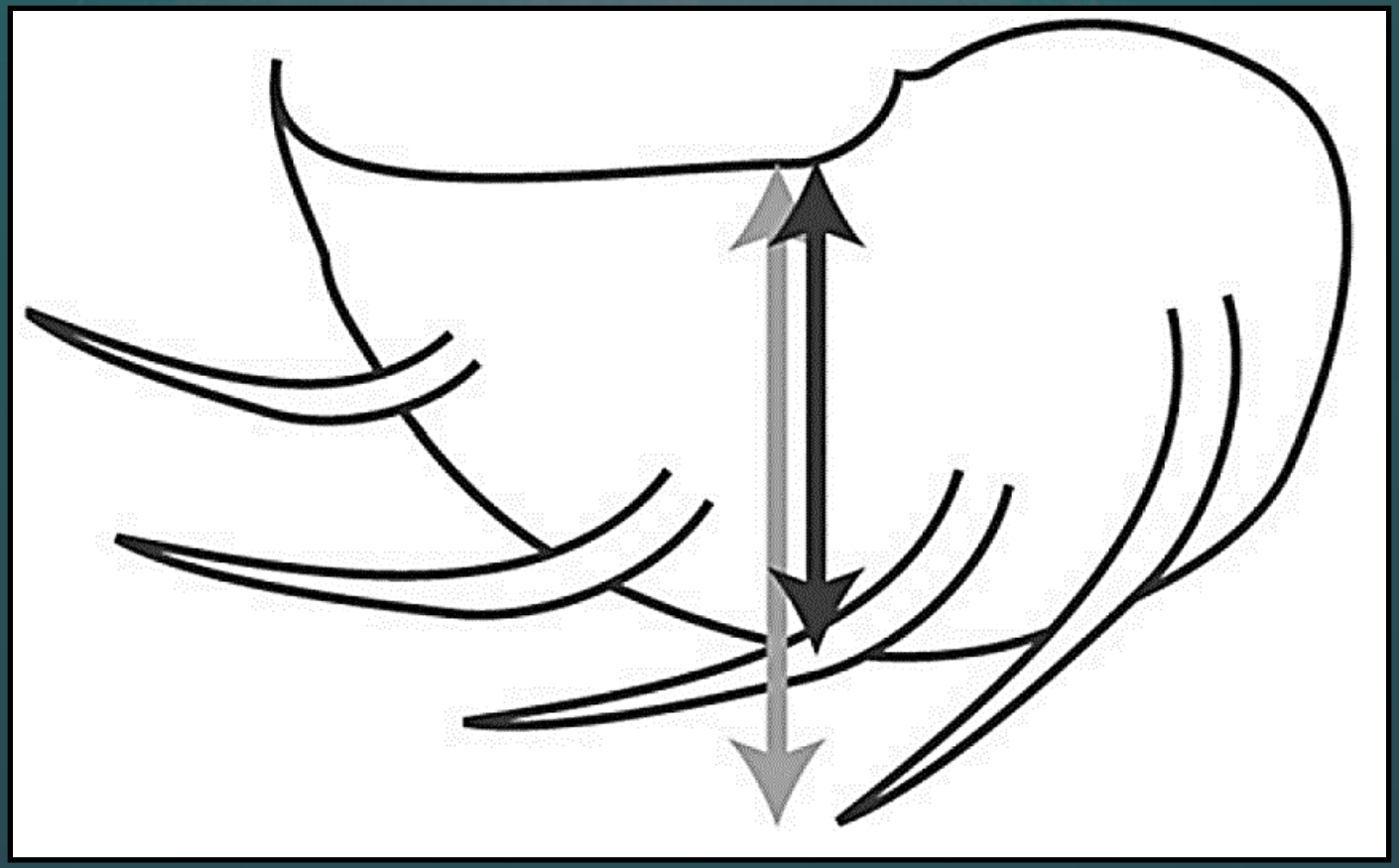


Photo: University of Bristol

Brachiopod Spines

Photo: Mark Wilson

Brachiopod Spines



From Johnsen *et al*., 2013

Question

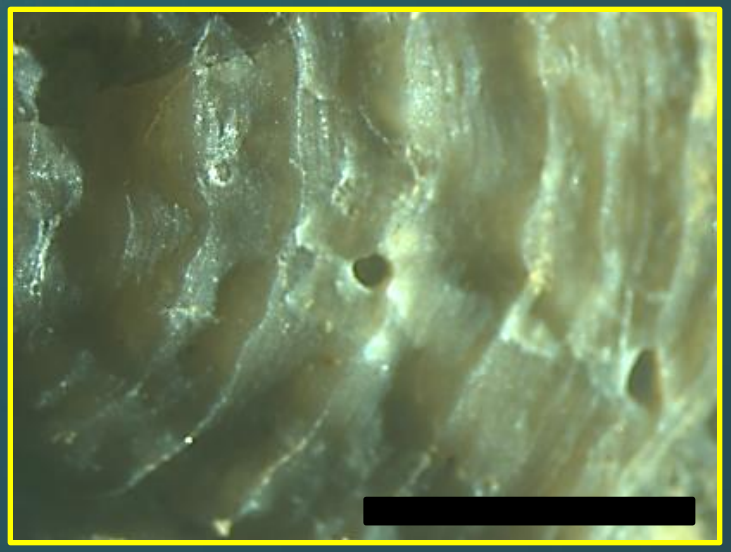
Do spines assist brachiopods in avoiding predation?

Photo: Fossiilid

Photo: naris.go.kr

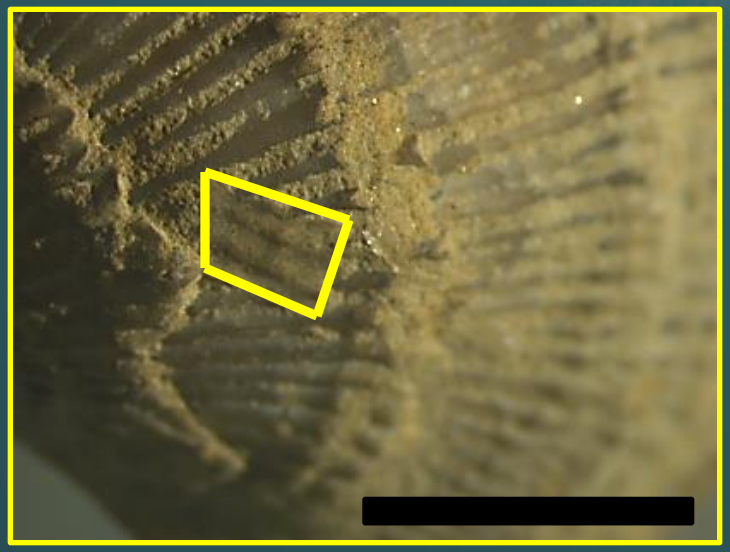
Signs of Predation

Atrypa devoniana



Atrypa rockfordensis

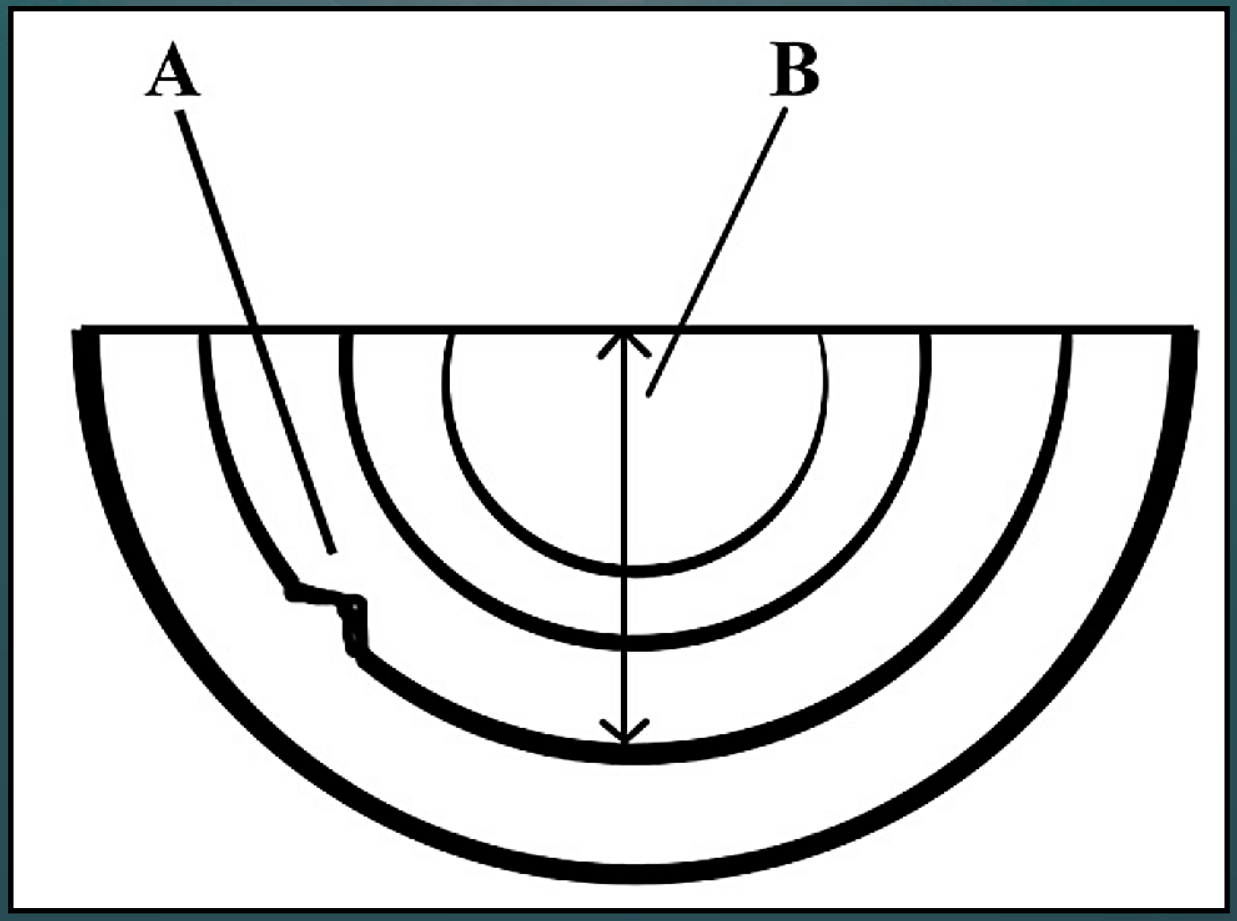
Signs of Predation



Atrypa devoniana

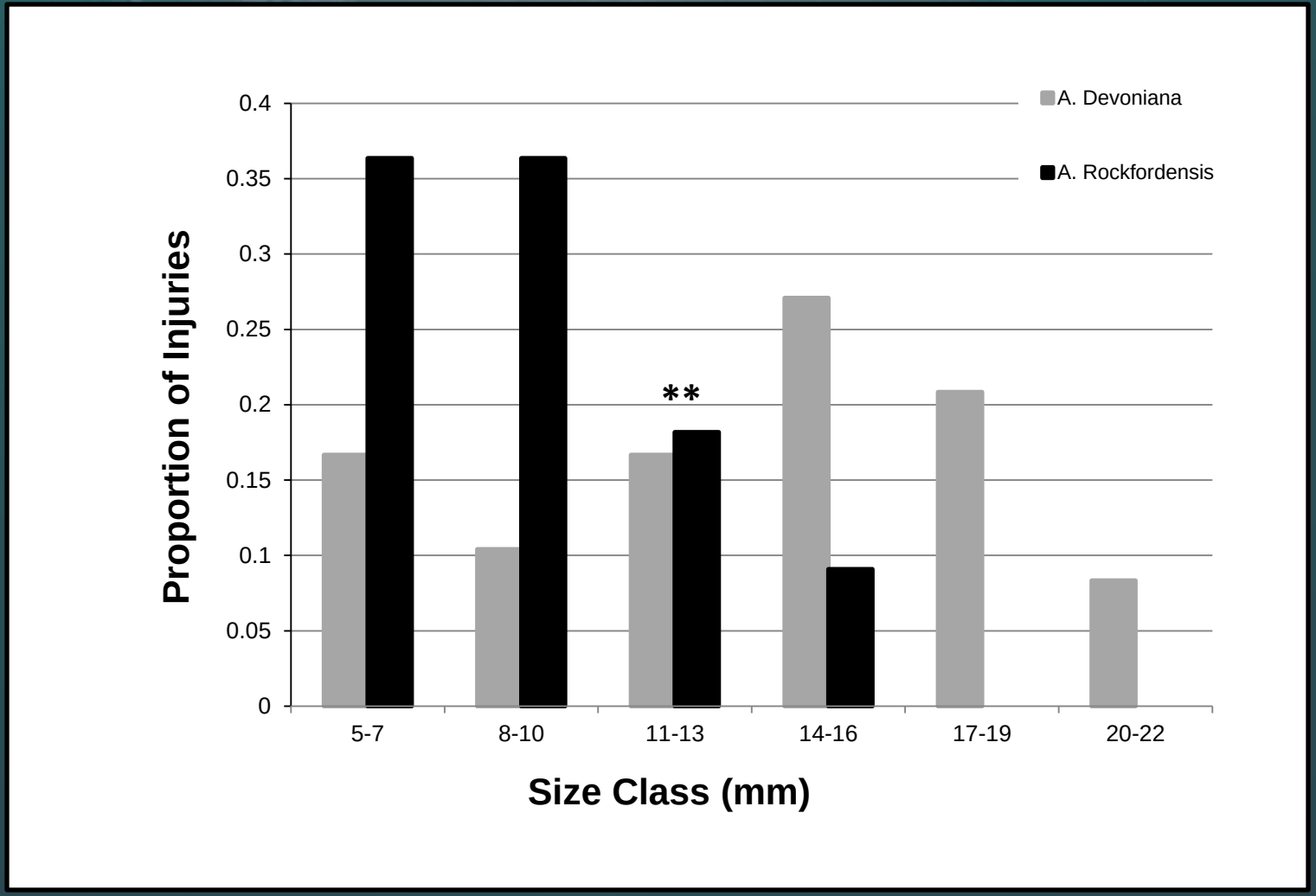
Atrypa rockfordensis

Measurements

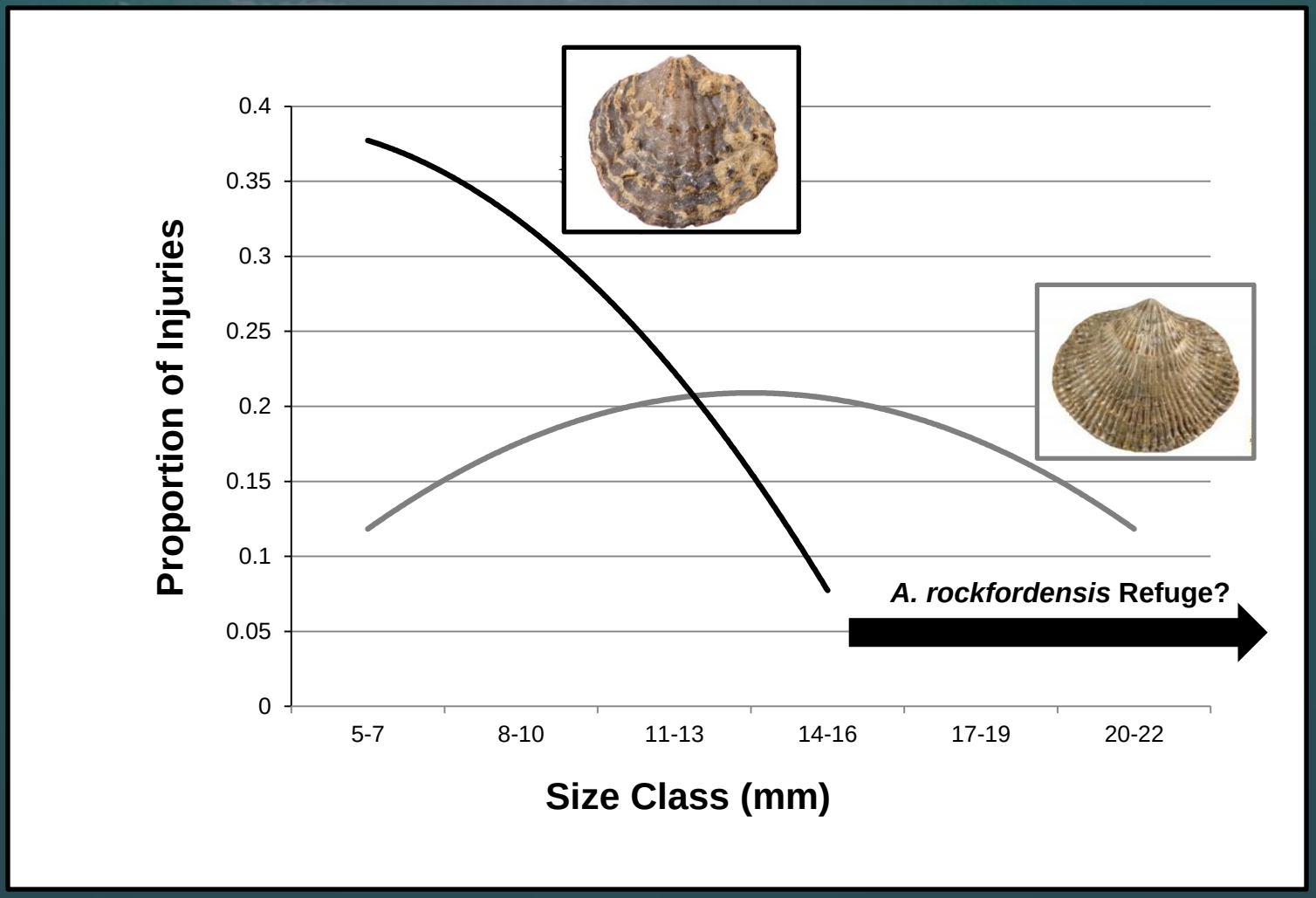


From Johnsen *et al*., 2013

Results


A. Devoniana
A. Rockfordensis
Proportion of Injuries
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
**
5-7
8-10
11-13
14-16
17-19
20-22
Size Class (mm)

Results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5-7
8-10
11-13
14-16
17-19
20-22
Size Class (mm)
A. rockfordensis Refuge?

Results

	Healed Scar	Borehole
A. devoniana	0.917	0.083
A. rockfordensis	0.636	0.364

- ~36% injuries to *A. rockfordensis* caused by boreholes
- Spines help prevent valve damage
- Boring predators need less surface area

Conclusions

- *A. rockfordensis* attacked less often
- *A. rockfordensis* not attacked above 17mm
- *A. devoniana* attacked at +22mm
- Boring predators less inhibited by spines

Questions?